

Computer culture magazine – International Edition



SAMPLE

Dumpster diving for hardware

Dust off your Amiga 500

Build a computer in the past

WHY DEMOS SUCK

Setting up a hackerspace

**SQL injections
ATTACK & DEFENCE**

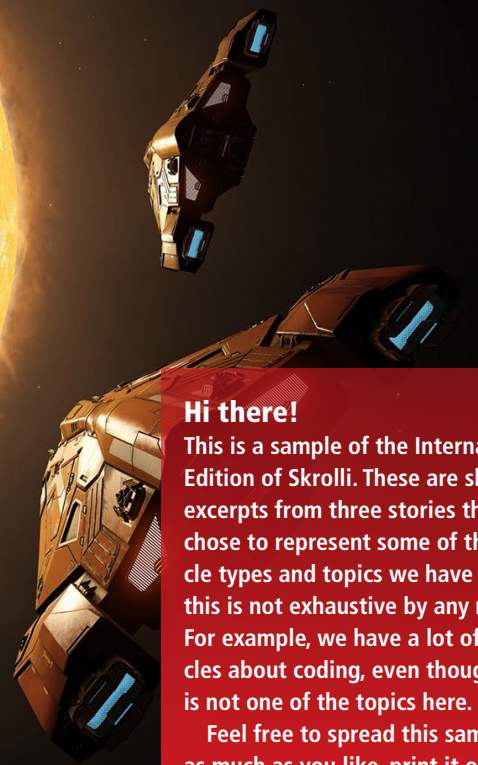
Cold War computers

Heroes of the Frontier

Space sims then and now

For centuries, people have been dreaming about exploring the cosmos. During the last three decades, the visions of scientists and sci-fi authors have also been transferred into computer games alongside the traditional books and films. Skrolli's spaceship will now travel beyond the final frontier, into the glimmering depths of distant galaxies. Story by Jukka O. Kauppinen

Pictures by Frontier Developments plc, GameTek, computerspacefan.com, Wikimedia Commons (Phrood)



Hi there!

This is a sample of the International Edition of Skrolli. These are short excerpts from three stories that we chose to represent some of the article types and topics we have – but this is not exhaustive by any means. For example, we have a lot of articles about coding, even though this is not one of the topics here.

Feel free to spread this sample as much as you like, print it out and show it to others and/or share it with your friends on social media.

All the stories printed here are actually much longer, and you can read them in their entirety in our first International Edition – head over to skrolli.fi/international to reserve your copy now!

Video games have been drawing on science fiction since the very beginning. Nolan Bushnell, one of the founding fathers of video games, blew up the market with *Pong* in 1972, but, before that, he made *Computer Space* (1971), a space battle simulator that was based on *Spacewar!* from 1962.

Indeed, as friends of video games, we have spent a fair amount of time in space. But 1984 saw the dawn of the age of *Elite*, which changed space games completely.

Since then, players have longed to return to the digital stars, as they are full of promises of adventures and riches. Prosperity and glory are elusive, however. The commodities markets are in constant turmoil, and pirates and accidents threaten the merchants around every corner. Sometimes, your own lasers are the only form of justice you can rely on; at other times, your best defences are your rear shields and maximum forward thrust.

Gravitational forces in space tend to vary. At times, the stars look bright and inviting, but their attraction can be gone the very next moment. All of a sudden, the once busy trading posts were degrading, and the last star port only had a couple of commercial spaceship operators running ghost ships to the nearest stars.

Space was empty. Not even the pi-

rates could find their booty when the large companies were stuck staring at their own bellies. After all, why would anyone invest in risk-laden interstellar trade when micropayments, mobile games and browser adventures were bringing in more money with less effort?

However, this all changed one day, when the inhabitants of planet Earth discovered crowdfunding and showed the universe that the stars are still as glorious as ever. The invitation just needed to be broadcast on another frequency. And suddenly, the stars are once again calling us.

From the shadows of Pong

During a time when video games had barely outgrown the legacy of *Pong* (1972) and *Pac-Man* (1980), a few visionaries already saw that computer technology could achieve something far greater. In the early 1980s, home computers were improving by leaps and bounds. Their memory capacity was growing, faster processors were being introduced and graphics and sound took large steps forward. Within a few years, video games left behind the Lego graphics and beeper sounds and became audio-visual art.

The first space adventure/trading simulator *Star Trader* came out in 1974. This trading sim was written in BASIC and based on the Foundation series by Isaac Asimov. It offered players a galaxy where traders hauled cargo from one solar system to another. It served as inspiration for *Trade Wars* (1984),

one of the most popular multi-player games of the BBS age. That story is for another time, however.

Star Trader was followed by *Merchant of Venus* (1982) from Britain. It was the first space adventure game for home computers. The game was written for the Sinclair ZX81, and it contained – albeit in very rudimentary form – all the constituents of space simulators for the coming decades. The text-based adventure allowed you to purchase different ships that you could then use to fly between stars, buying and selling goods. The game had no battles, but you could still lose your ship when docking on new planets via an action sequence.

Even though *Merchant* was not a 3D space simulator, it was a representative of the first generation of space adventure/trading games. It also provides us with a point of reference when we consider the unbelievable leap in terms of technology and content that came out only two years later.

Welcome, Commander Jameson

David Braben and Ian Bell were fresh university students when they created *Elite*. The world of games was domi-

Computer Space



Players took to the skies in the very first computer and arcade games. Computer Space was an arcade adaptation of Spacewar.



nated by shoot'em ups and platformers, all of which had three lives and clearly defined goals. Compared to them, *Elite* (1984) exploded like a supernova.

It was a space adventure without limits. The game dropped you off at Lave Station with your Cobra Mk. III spaceship. What you did after this was entirely up to you. You could be a peaceful trader, a greedy pirate, an adventurer or a space miner, for example. The game had no overall story

or mandatory missions. Every player created their own space odyssey with their actions and imaginations. Occasionally, however, experienced players could encounter some of the missions hidden deep inside the network of galaxies. The level of freedom was incomprehensible.

Another thing that was incomprehensible was the size of the universe: somehow, 64 kilobytes could contain eight galaxies, 2,048 planets with their unique systems of government, several

spaceships and all sorts of technology.

The game combined a sandbox approach with technological marvels, since the wireframe 3D space and cockpit view had never been seen before. "Why can't I see my ship?", players wondered.

And we must not forget the humour and secrets! At times, players could come across completely unexpected things in the depths of the galaxy. An armada of aliens could lie in wait in hyperspace. Did I really see a TIE Fighter, or was it just an illusion caused by an extended gaming sessions? There are still many unconfirmed legends in the deep space of *Elite*.

Perhaps this is one of the signs of a true classic: a work of art creates its own folklore that is then passed on by veterans after a few too many pints of space grog.

It is also astonishing that, in the end, *Elite* only tied together the ingredients from the previous ten years of space adventures. Admittedly, the execution was flawless, but the foundation for the genre had already been laid before. *Elite* from 1984, was such a perfect game that it has not been substantially surpassed in three decades.

Federation of Free Traders – a wonderful failure

At the dawn of 16-bit home computing, many people wanted to create the definitive space simulator. But how would you make a better *Elite* that is not *Elite*?

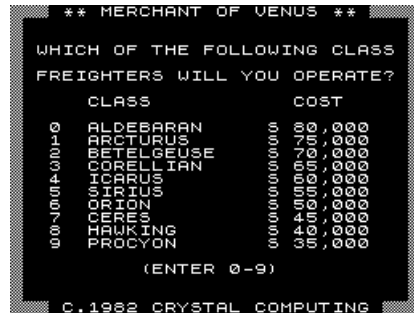
The 16-bit *Elite* conversions were OK. They were good but not revolutionary, not even on the Amiga. Meanwhile, Warren Burch and Clive Gringras created such an awesome clone of *Elite* for the Acorn Archimedes that it was eventually released as an official conversion. Some purists believe that *ArcElite* (1991) is in fact the best ever original *Elite*.

In the end, the most ambitious *Elite*-killer was *Federation of Free Traders* (1989), a space simulation that was too complicated and detailed for its own good. It offered a galaxy of eight million planets and activities from exploration to free trading. In theory, that is. In practice, the game was too gimmicky to ever take off.

To be continued...



Spacewar was the first space battle game on a computer.



A space adventure in 1982: Merchant of Venus.



In addition to an unforgettable intergalactic adventure, *Elite* also offered hair-raising moments: docking with the space stations was devilishly hard.



Commander Jameson started their galactic voyage at Lave Station. It can also be found in *Elite Dangerous*.

Doomsday machines

Would you trust the fate of the world to a barometer?



It might be easy to forget this in a rush of nostalgia, but the 1980s were not only about moon boots, MacGyver and New Order. The threat of nuclear war between the United States and the Soviet Union was very real, in particular during the earlier part of the decade. And everyone knew what this would mean: the end of all life as we know it. This thought was not particularly comforting to 1980s children, and we would have slept even worse had we known how close to global nuclear war the world actually came.

Story by Mikko Heinonen
Pictures by Manu Pärssinen,
Wikimedia Commons



Paradoxically, both the U.S. and the USSR were simultaneously afraid of each other and convinced that their counterpart would never think that they were going to be the first ones to press The Button. NATO's Able Archer 83 military exercise was a culmination of this absurdity. The allies were training for a scenario where nuclear war had started, which led Soviet espionage to believe that they were using the exercise as a cover-up to start a war. The agents were only asked to report their findings, not their conclusions – and chaos ensued since each one of them only saw a small part of the big picture. The situation was only defused when the exercise ended.

War on the big screen

The tension between the superpowers naturally left its mark on popular culture. There were dark doomsday prophecies such as *Testament*, *Threads* and *The Day After*, but nuclear war was a mainstay in movies of all kinds. One of the more famous ones is 1983's *War-games*, where a young hacker called David (Matthew Broderick) accidentally calls a computer that supervises

nuclear weapons while searching for the latest games. Even though the film does cut some corners in traditional Hollywood fashion, it contains realistic ways of discovering passwords, for example, and many have cited it as an influence for picking up computers as a hobby.

One of the main characters is an AI known as WOPR (War Operation Plan Response), developed by the fictional Professor Falken (John Wood). It tries to simulate different types of conflicts from tic-tac-toe to World War III. WOPR is commissioned because the operators sitting in the silos are unwilling to launch their nuclear weapons despite receiving direct orders. David accidentally sets the AI to simulate nuclear war, but the military command believes it has really started. WOPR also tries to launch the missiles autonomously until it reaches the reassuringly optimistic conclusion that the only winning move is not to play. It also becomes apparent that a machine's judgment can fail even worse than that of a human's.

Life imitating art

When viewed from the future, it seems that *War-games* has more similarities with real life than the writers maybe even realised. The film was loosely

based on an incident that took place in the early 1980s, during which the U.S. Air Force had already scrambled its nuclear bombers due to misleading information received from NORAD. The cause was not a hacker looking for computer games, but a computer stuck in "war simulation" mode. The on-duty personnel interpreted its messages as real. There had been at least two similar cases: one was due to human error, the other was caused by another malfunctioning computer. Even then, some branches of the military had not followed orders since they were sure that the alarm was false. By this time, the information had already reached everyone, which leads us to conclude that the risk of a nuclear holocaust was fairly low.

In September 1983, however, human logic helped to avoid the possibly severe consequences on the other side of the Atlantic. Officer Stanislav Petrov was sitting in a control room and monitoring signals from the Soviet missile warning system when he received a report of a Minuteman missile targeted towards the Soviet Union. Petrov reviewed the information and acknowledged it as a false alarm.

To be continued...

Story by Ville Jouppi
Pictures by Ville Jouppi
Toni Bratincevic
Henrik Erlandsson



Were you cleaning up your closet when you came across your good old Amiga 500? Did you find yourself sitting with your friends and reminiscing about the golden times, when the hardware was great and the games were hard? Do you think you could now totally own the Oldskool demo compo at Assembly?

System



The belly of the beast

Regardless of whether you are now looking at your old trusty workhorse or a previously loved eBay purchase, your mind will probably be full of questions. This article reviews some of the more common failures and problems that you can expect with a piece of classic hardware.

A large budget is not required, but if you have money to spend, there is no upper limit, of course. The cheapest alternative is to leave out all the expansions and to use floppy disks for loading software. However, if you are looking to do anything more serious, mass storage that is faster and larger than floppies is a necessity. Memory will also be in short supply if you aim to venture outside of feeding game disks into the drive.

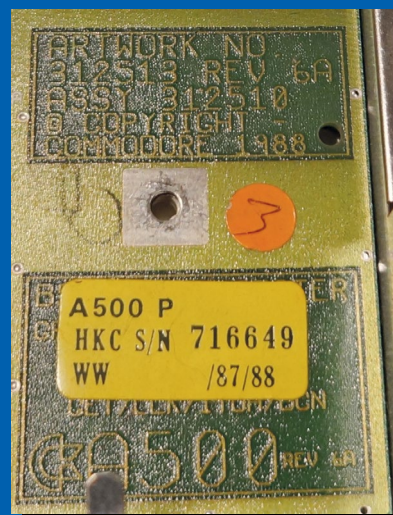
The very first thing you should do is open up the Amiga and take a glance at the inside. Remove all the screws at the bottom of the machine, except for the three countersunk screws below the disk drive. After this, you can simply lift off the top part. There are clips on the left and right sides of the case, near the upper edge of the keyboard; these may be tight if the Amiga has never been opened before.

Taking the top off usually reveals a dull sight: the keyboard, disk drive and a large metal shield. Remove the keyboard connector from the motherboard by pulling it upward. Note its orientation. The black wire should be on the left. Lift the keyboard to one side. You can lightly tap on the

keyboard to remove dust from between the keys. A vacuum cleaner will also work, provided that you use a low, weak power setting.

After this, it is time to tackle the RF shield. The shield is fastened with four screws (in the front section and on the cover for the **Amigabus** slot on the side) and a set of small metal clasps. Remove the screws and straighten the clasps. You can now lift the shield off.

Motherboard
identifier for
revision 6A





With the shield out of the way, you will see the motherboard. The first thing you should do is to take a look at the corner of the PCB, next to the floppy drive, and check the revision number. Revisions of 6 and above are preferable, 5 is something you can live with. If the corner has no revision number, the motherboard is revision 3. It is mainly of collector interest due to its age and instability. Revisions 4 and 7 are very rare and you might want to offer them to a collector. They are not worth a fortune, but chances are you will sell it for more than you paid for it.

Some of the very last A500s are revision 8, which means that they are actually dumb-down versions of the A500+. You can turn one into a full A500+ by adding a few components. If this is some-

thing you might be interested in, I recommend that you take a look at the schematic diagrams and online photographs of different motherboards in order to find the differences.

In the nick of time

At this point, you should take a critical look at all of the electrolytic capacitors – the bean-can like, plastic insulated two-prong components that stick out of the motherboard. If there are any deposits below the capacitor or if the solder joints nearby have turned green, the capacitor has failed and it needs to be replaced. You need to clean up any spilled electrolyte to stop it from corroding the motherboard. In the larger capacitors, failure may also cause the top to bulge out.

Finally, you should see if the machine has a memory expansion with a real-time clock and battery. If the memory expansion is Commodore's own A501, there is a 100% chance that the battery has failed and leaked onto the RAM/RTC module. You can recognise the A501 by its enclosure inside a large wedge-shaped RF shield that requires a soldering iron to open.

If the original battery is still in place, you must remove it before connecting the power in order to avoid leaks. Small side-cutting pliers are great for the removal: simply cut the feet and lift off the expired battery. If the battery has already failed, you need to clear off the electrolyte in order to avoid further damage. Unsweetened lemon juice works well in neutralising the electrolyte, and final cleaning is best done with isopropyl alcohol.

You can leave out the battery if you only intend to use the Amiga for gaming. The real-time clock will no longer show the correct time, but this should be a very minor nuisance. Users of utility software should replace the battery, since file timestamps that make sense are useful – and you might occasionally glance at the desktop clock. You can also replace the rechargeable battery with a coin-type lithium battery and diode. The diode is installed between the positive battery holder terminal and the motherboard, with the conducting direction towards the motherboard. If you feel that this is above your level of competence in electronics, a ready-made replacement kit is available from Amigakit.

To be continued...



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